ATRIAL FIBRILLATION

Radhika Nandur Bukkapatnam MD MAAS FACC

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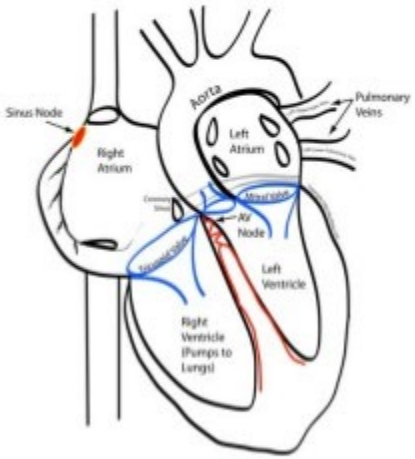
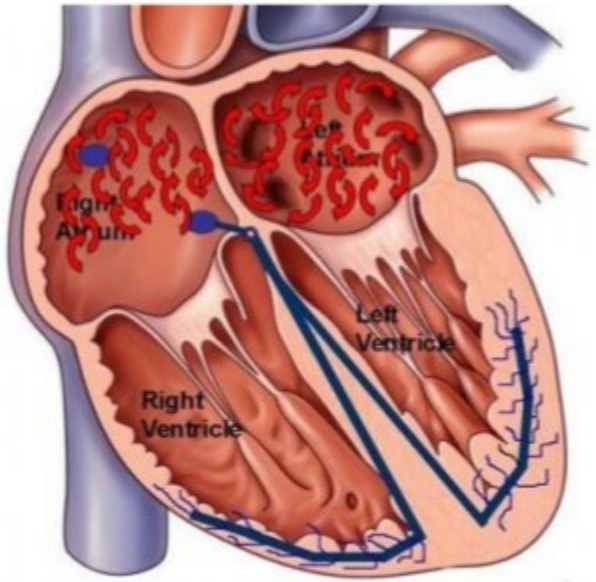
OBJECTIVES

- Introduction
- Classification
- Burden of the problem
- Diagnosis
- Management

DEFINITION

- Irregular, chaotic heart rhythm that comes from the left atrium or the pulmonary veins.
- Paroxysmal
- Persistent
- Chronic


Sinus Node
Aorta
Pulmonary Veins
Left Atrium
Right Atrium
AV Node
Left Ventricle
Right Ventricle (Pumps to Lungs)

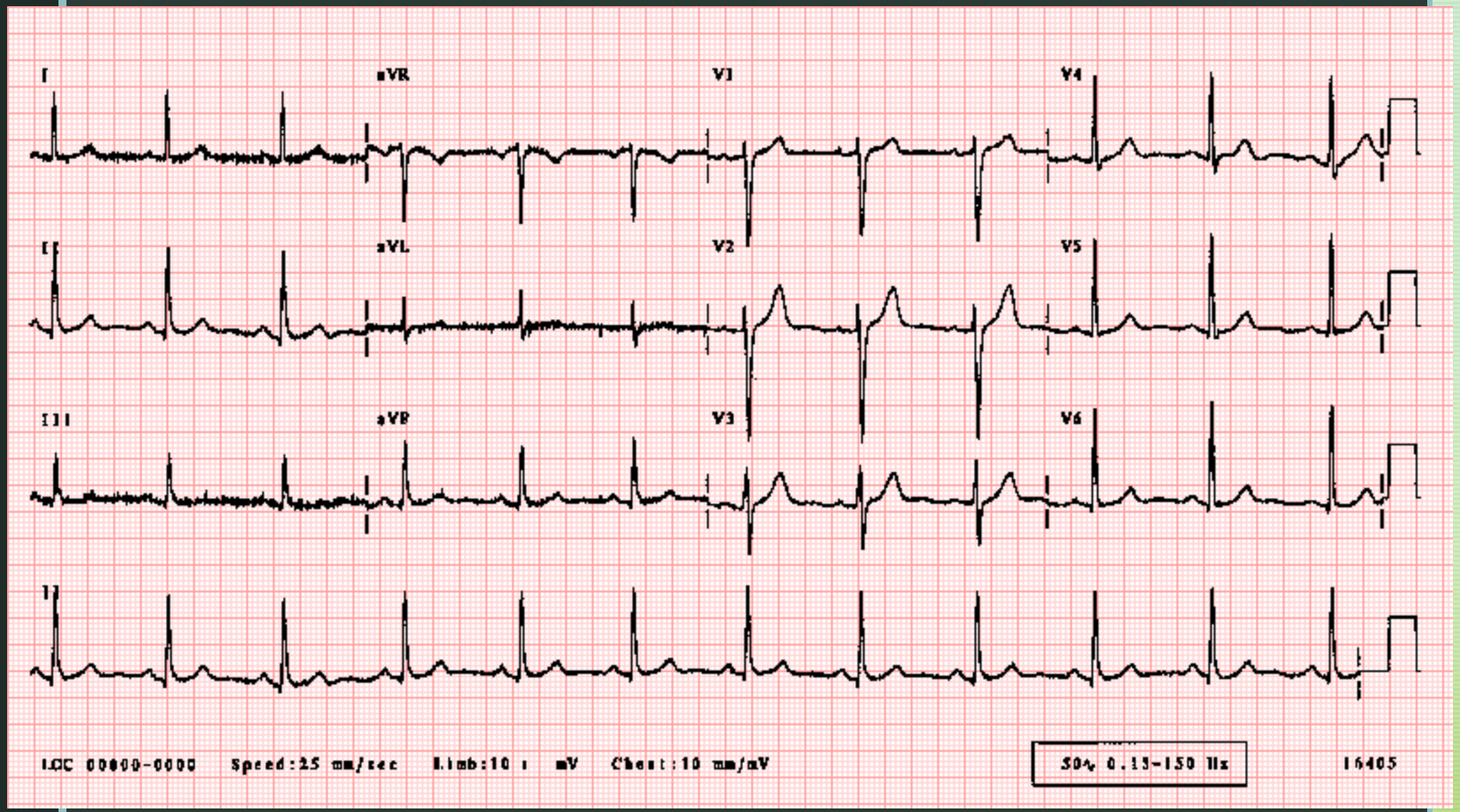

Left Ventricle
Right Ventricle

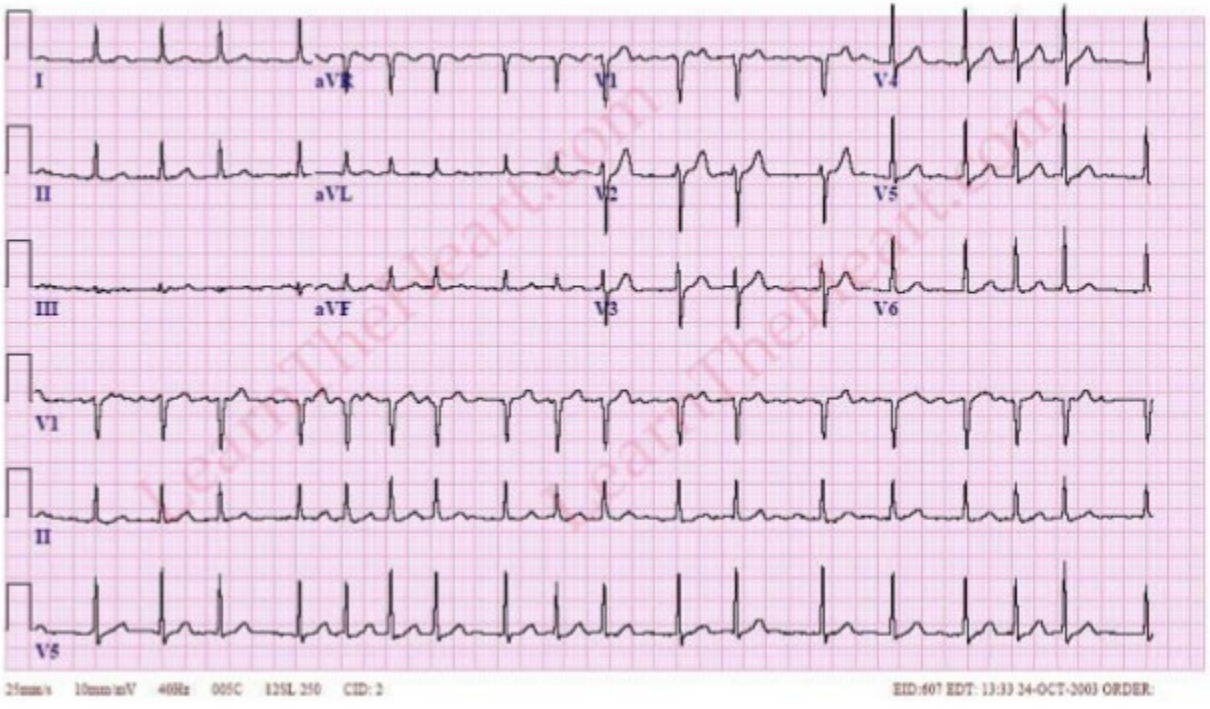
DIAGNOSIS

- Pulse palpation
- 12 lead ECG
- Holter monitoring

- **Others**
- Echocardiogram, CXR
- TFT, Electrolytes, Clotting, LFT,CBC

Normal ECG


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II
LOC 00000-0000
Speed:25 mm/sec
Limb:10 mV
Chest:10 mm/mV
50Hz 0.15-150 Hz
16405


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
V1
II
V5
25mm/s 10mm/mV 40Hz 005C 12SL 250 CID: 2
EID:607 EDT: 13:33 24-OCT-2003 ORDER:

Prevalance

- 2.2 Million people in the US
- 6.5 cases/1000 examinations
- 4% > 60yrs
- 8 % > 80 yrs
- 25% of individuals aged 40 yrs and older will develop AF in their life time.

Clinical events (outcomes) affected by AF

Outcome Parameter	Relative change in AF patients
1.Death	1.Death rate is doubled
2.Stroke	2.Stroke risk increases 5 times
3.Hospitalisation	3.More frequent
4.Quality of life and exercise capacity	4.Can be markedly decreased
5.LV function	5.Tachycardiomyopathy/ heart failure

Classification of AF

Terminology	Clinical features	
Initial event (first detected episode)	Symptomatic Asymptomatic Onset unknown	Rhythm/Rate
Paroxysmal	Spontaneous termination <7 days and most often <48 hours	Rhythm Control
Persistent	Not self-terminating Lasting >7 days or prior cardioversion	Rhythm or Rate control
Permanent ('accepted')	Not terminated Terminated but relapsed No cardioversion attempt	Rate Control

What causes A fib

Etiologies of AF

CARDIAC

Hypertensive heart disease

Valvular heart disease

Ischaemic heart disease

Cardiomyopathy

Pericarditis

Congenital heart disease

Post Cardiac surgery

Etiologies of AF contd:

NON CARDIAC

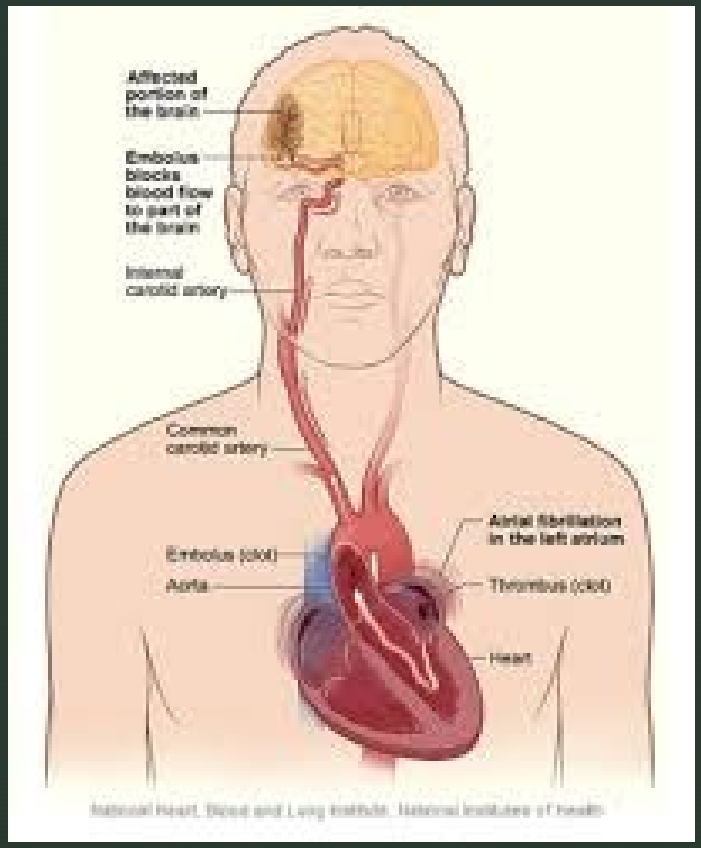
1. Pulmonary : Pneumonia, COPD,PE
2. Hyperthyroidism
3. Excess catecholamine /sympathetic activity
4. Drugs and alcohol
5. Significant electrolyte imbalance

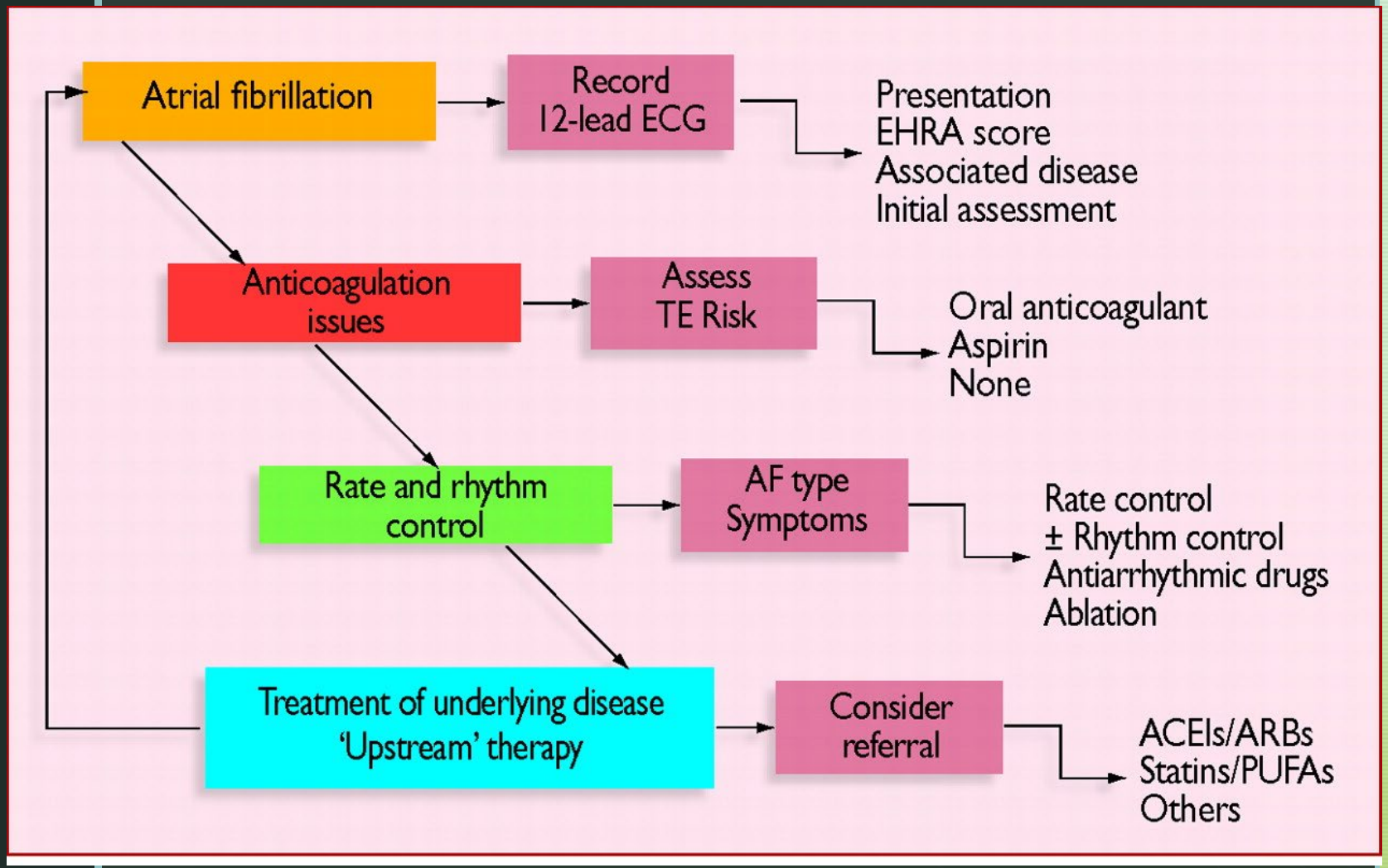
LONE ATRIAL FIBRILLATION

- Younger patients < 60
- No underlying cause
- Usually not much symptoms
- Normal heart structure
- No associated co-morbidities

Why AF management is important?

- extremely common
- Can lead to symptoms
- potentially serious consequences:
  - embolism
  - impaired cardiac output
  - increased mortality


Affected portion of the brain
Embolus blocks blood flow to part of the brain
Internal carotid artery
Common carotid artery
Atrial fibrillation in the left atrium
Embolus (clot)
Aorta
Thrombus (clot)
Heart


Atrial fibrillation
Record 12-lead ECG
Presentation
EHRA score
Associated disease
Initial assessment
Anticoagulation issues
Assess TE Risk
Oral anticoagulant
Aspirin
None
Rate and rhythm control
AF type
Symptoms
Rate control
± Rhythm control
Antiarrhythmic drugs
Ablation
Treatment of underlying disease
'Upstream' therapy
Consider referral
ACEIs/ARBs
Statins/PUFAs
Others

MANAGEMENT OF A FIB

- Acute Management
- Stroke Prevention
- Rate control: For symptoms and to prevent decompensation
- Rhythm control: To prevent stroke, dementia, CHF
- Prevention

ACUTE TREATMENT OF A FIB

Management of Acute AF (<48 hrs)

- Haemodynamically unstable : hypotension/heart failure/chest pain/syncope

  Use DC Cardioversion

  Haemodynamically stable :

  Rate control : If significant tachycardia

  Rhythm control : Flecainide, Propafenone (cl-I) Amiodarone, Sotalol (cl-III)

  Anticoagulant : LMWH

STROKE PREVENTION

How do we determine stroke risk ?

- **0 points – low risk** (1.2-3.0 strokes per 100 patient years)
- **1-2 points – moderate risk** (2.8-4.0 strokes per 100 patient years)
- **≥ 3 points – high risk** (5.9-18.2 strokes per 100 patient years)

Stroke Prevention
CHADSVasc Score

- C – congestive heart failure
- H – hypertension
- A – age 65 (1 pt), age 75 (2 pts)
- D – diabetes
- S – prior stroke or TIA
- Va - vascular disease
- S – gender (female gender – now no longer considered)

- CHADsVasc ≥ 2 – advise anticoagulation
- CHADSVasc score ≥ 1 – consider anticoagulation
- CHADSVasc score 0 – anticoagulation not advised

Annualized Stroke Risk vs CHADS-VASc Score in Afib Patients

CHADS2 – VASc Score	
C	Congestive Heart Failure
H	Hypertension (>140/90 mmHg)
A	Age ≥ 75
D	Diabetes Mellitus
S_2	Prior TIA or stroke
V	Vascular disease (MI, aortic plaque etc)
A	Age 65-74
Sc	Sex category (Female = 1 pt)

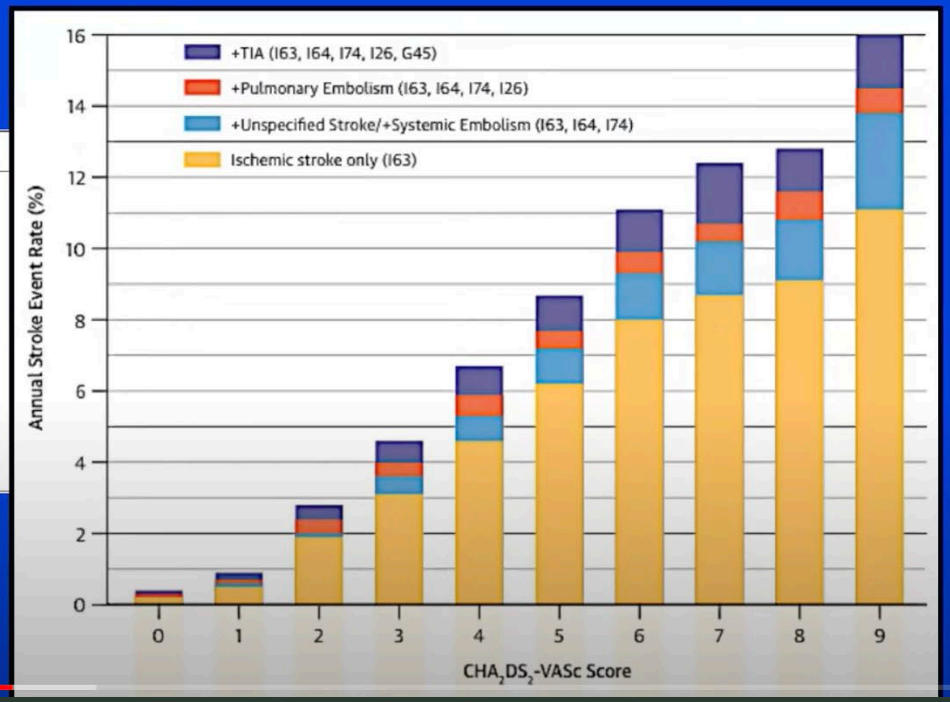


Table 1. Changes in exposure to oral anticoagulants, 2015 Q4 to 2016 Q4*

Drug Name	Dispensed Prescriptions 2015 Q4	Dispensed Prescriptions 2016 Q4	Percent Change	Market Share**
apixaban	1,315,213	2,183,821	66.0%	19.2%
dabigatran etexilate	487,527	486,176	-0.3%	4.3%
edoxaban	23,563	23,886	1.4%	0.2%
rivaroxaban	1,948,201	2,209,216	13.4%	19.4%
warfarin	7,332,251	6,488,962	-11.5%	57.0%
Total oral anticoagulants	11,106,755	11,392,061	2.6%	

** Dispensed outpatient prescriptions per QuintilesIMS data*
*** In 2016 Q4*

Types of Blood Thinners

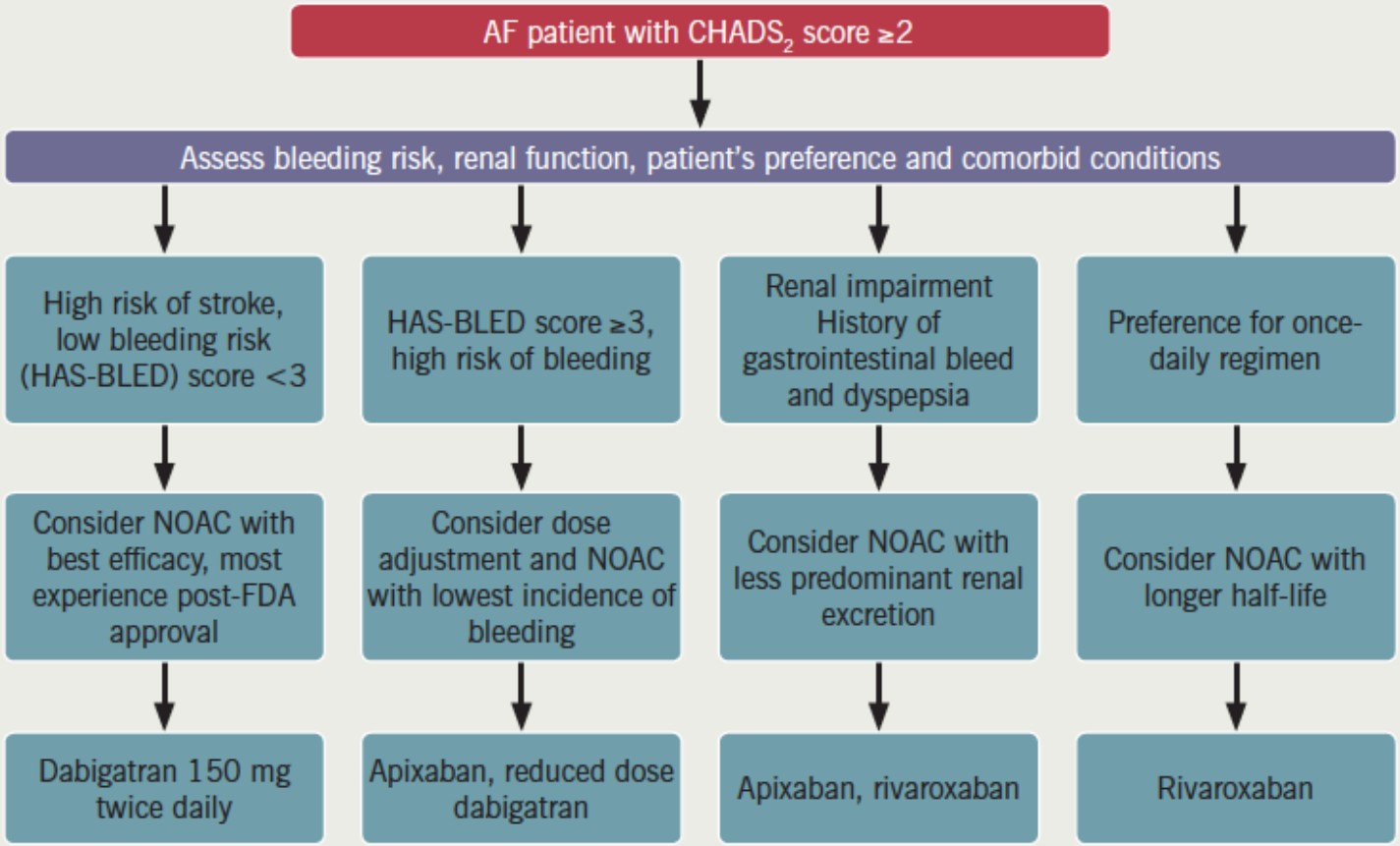
The HAS-BLED bleeding risk score

Letter	Clinical characteristic*	Points awarded
H	Hypertension	1
A	Abnormal renal and liver function (1 point each)	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INRs	1
E	Elderly (e.g. age > 65 years)	1
D	Drugs or alcohol (1 point each)	1 or 2
		Maximum 9 points

Bleeding Risk

- Assessment of bleeding risk should be part of the clinical assessment of AF patients prior to starting anticoagulation
- Antithrombotic benefits and potential bleeding risks of long-term coagulation should be explained and discussed with the patient
- Aim for a target INR of between 2.0 and 3.0
- Forms of monitoring include point of care or near patient testing and patient self-monitoring

How do we choose blood thinners



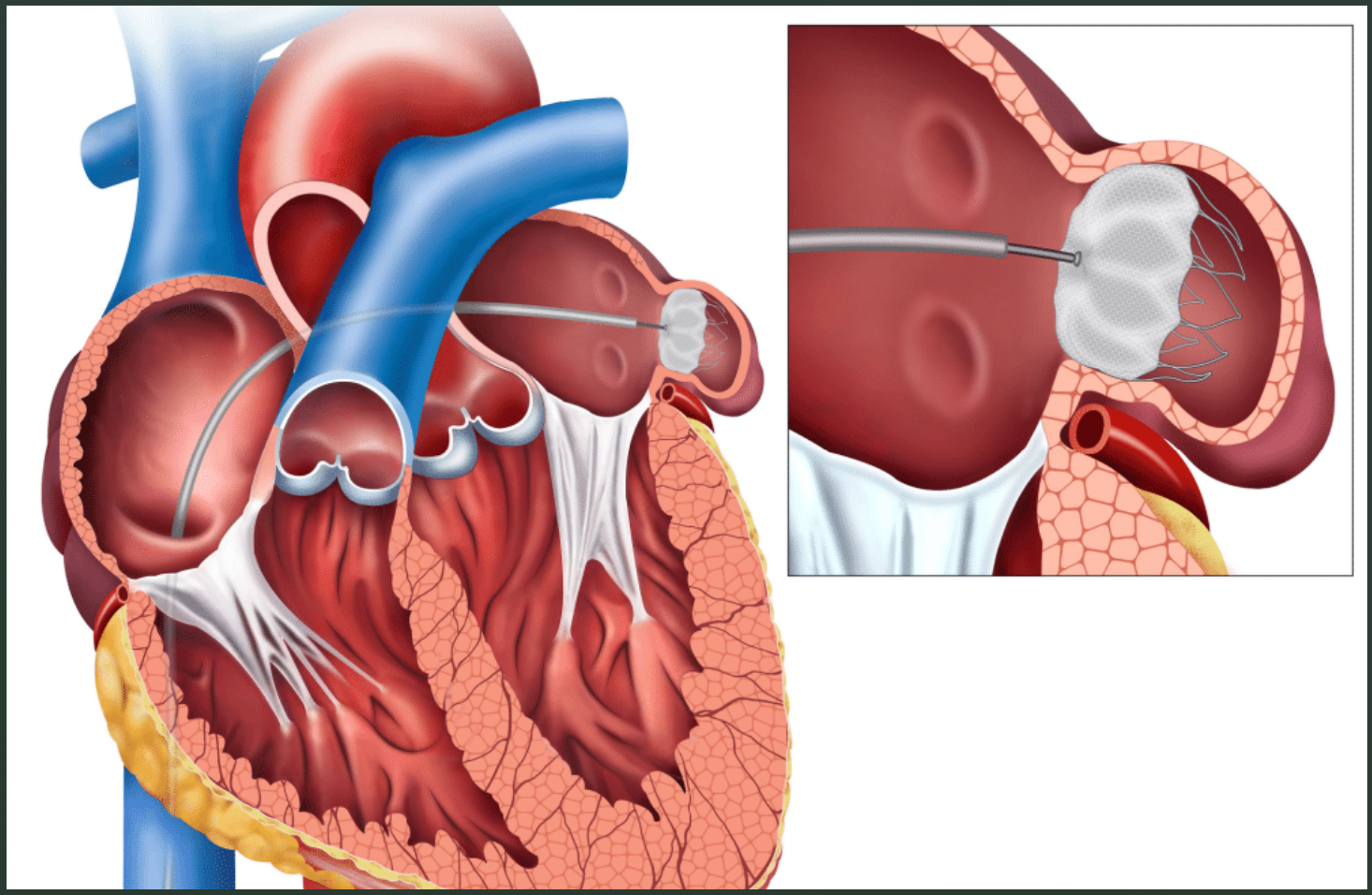
From Maan A, Heist EK, Ruskin JN, Mansour M. Practical issues in the management of novel oral anticoagulants – cardioversion and ablation. *J Thorac Dis* 2015;**7**:115–31, with permission from AME Publishing Company.

Key: AF = atrial fibrillation; FDA = Food and Drugs Administration; NOAC = non-vitamin K oral anticoagulant

Who should remain on warfarin?

- Patient already receiving warfarin and stable whose INR is easy to control
- If dabigatran, rivaroxaban, apixaban not available
- Cost
- If patient not likely to comply with twice daily dosing (Dabigatran, Apixaban)
- Chronic kidney disease (GFR < 30 ml/min)

WATCHMAN DEVICE: CLOSURE OF LEFT ATRIAL APPENDAGE



RATE and RHYTHM CONTROL

Rate control as preferred therapy

- Age ≥ 65, less symptomatic, hypertension
- Recurrent afib
- Previous antiarrhythmic drug failure
- Unlikely to maintain sinus rhythm (enlarged LA)

Rate Control Options

- Beta blocker
- Calcium channel blocker
  - Verapamil, diltiazem

. Digoxin

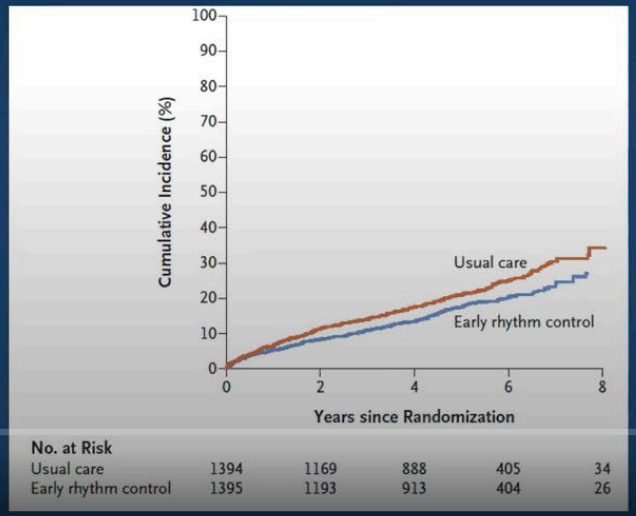
- AV junction ablation plus pacemaker

Early Rhythm-Control Therapy in Patients with Atrial Fibrillation

P. Kirchhof, A.J. Camm, A. Goette, A. Brandes, L. Eckardt, A. Elvan, T. Fetsch, I.C. van Gelder, D. Haase, L.M. Haegeli, F. Hamann, H. Heidbüchel, G. Hindricks, J. Kautzner, K.-H. Kuck, L. Mont, G.A. Ng, J. Rekosz, N. Schoen, U. Schotten, A. Suling, J. Taggeselle, S. Themistoclakis, E. Vettorazzi, P. Vardas, K. Wegscheider, S. Willems, H.J.G.M. Crijns, and G. Breithardt, for the EAST-AFNET 4 Trial Investigators*

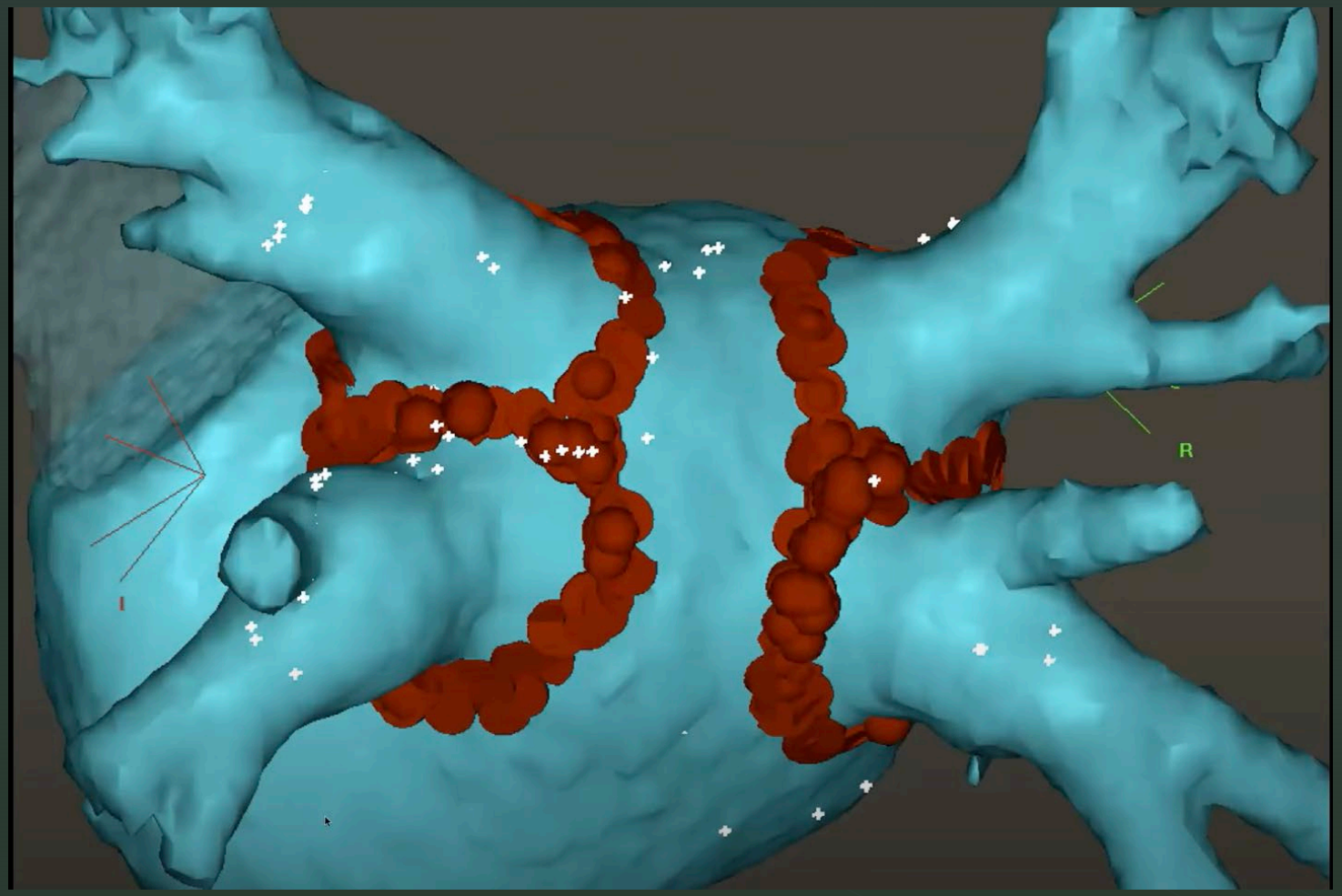
Primary outcome was a composite of CV death, stroke, heart failure hospitalization, or ACS

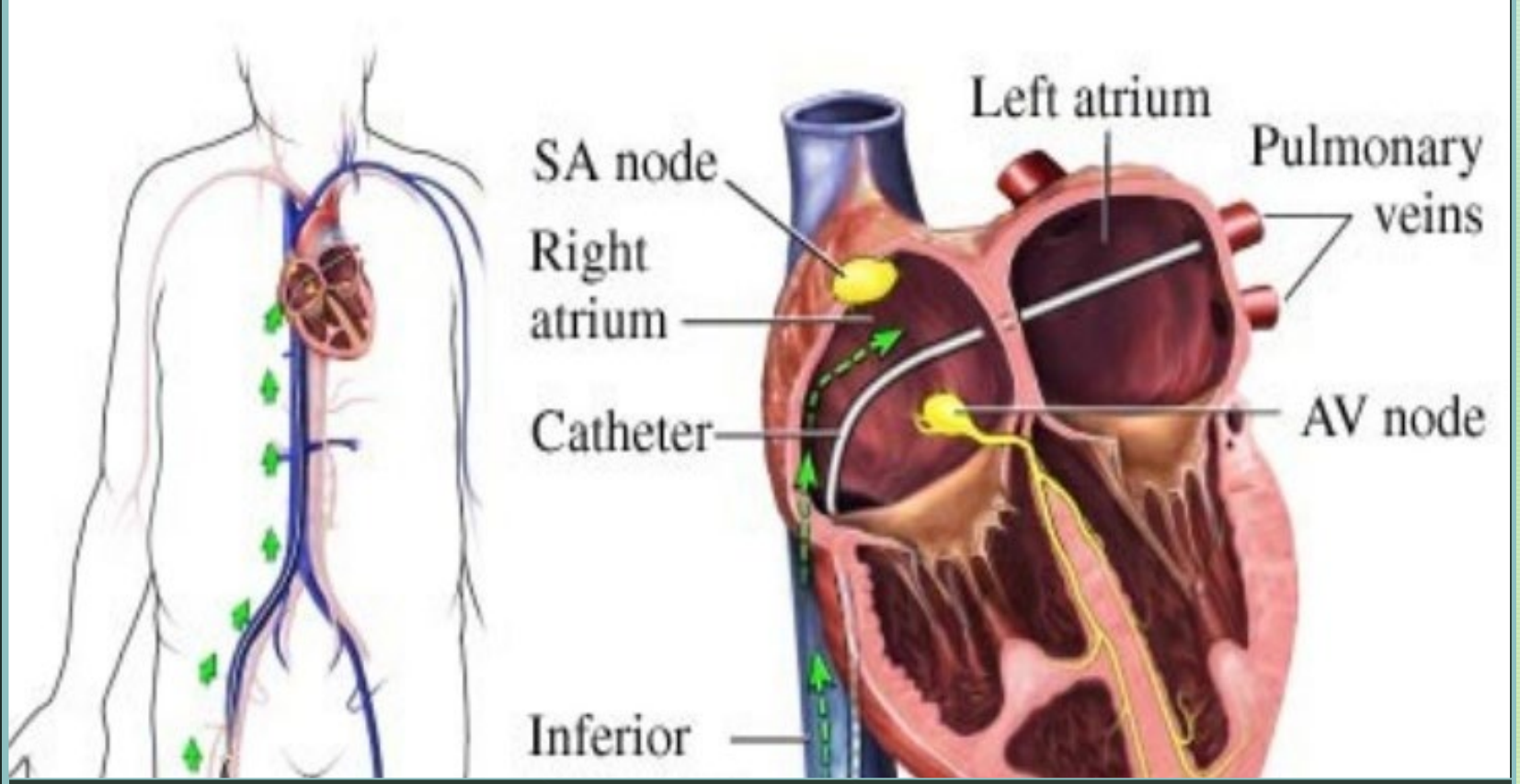
3.9 vs 5.0 per 100 pt years ($p < 0.01$)



Antiarrhythmic Medications

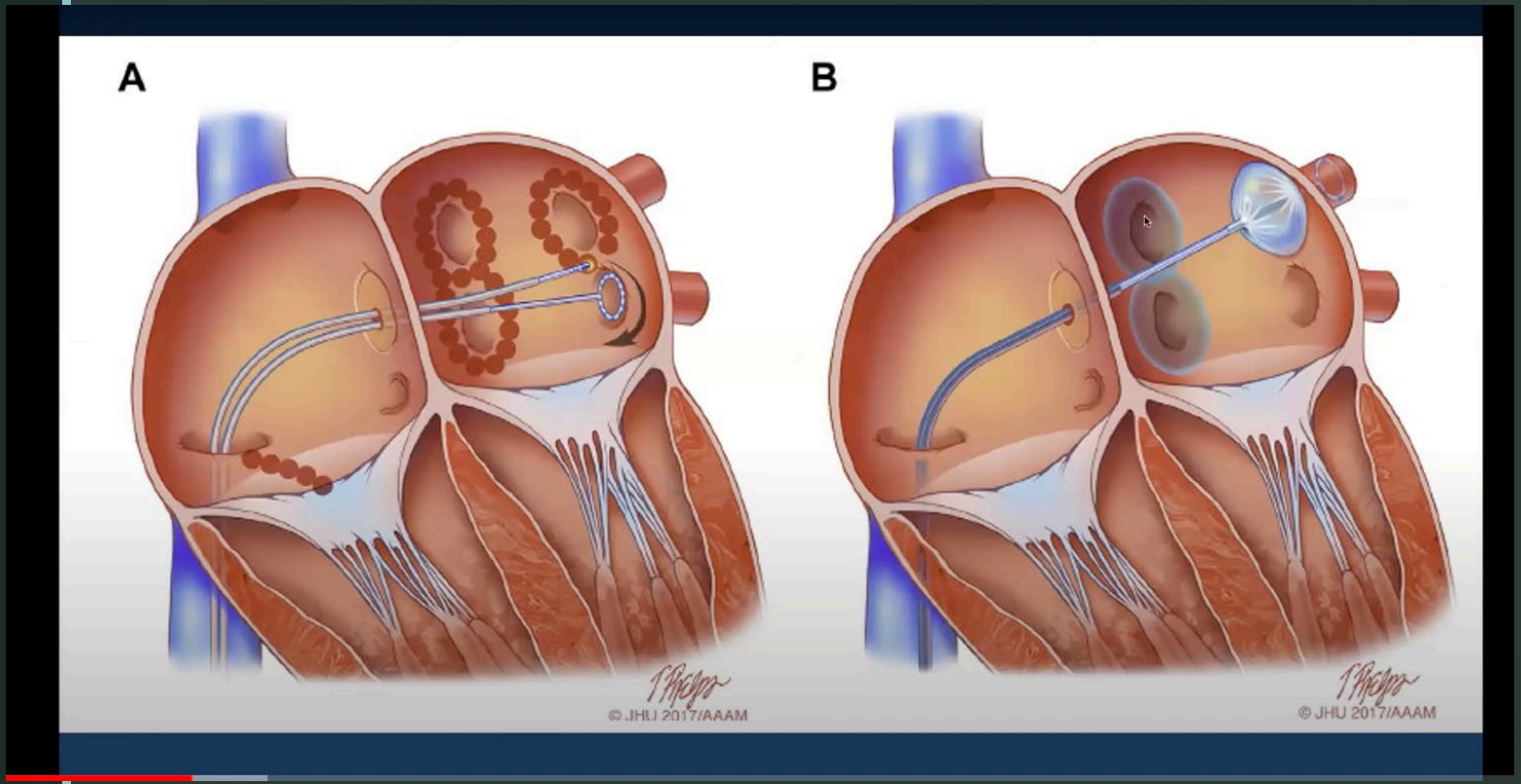
- Amiodarone
- Flecainide
- Multaq
- Propafenone
- Sotolol
- Tikosyn


R
I



A fib Ablation

ABLATION



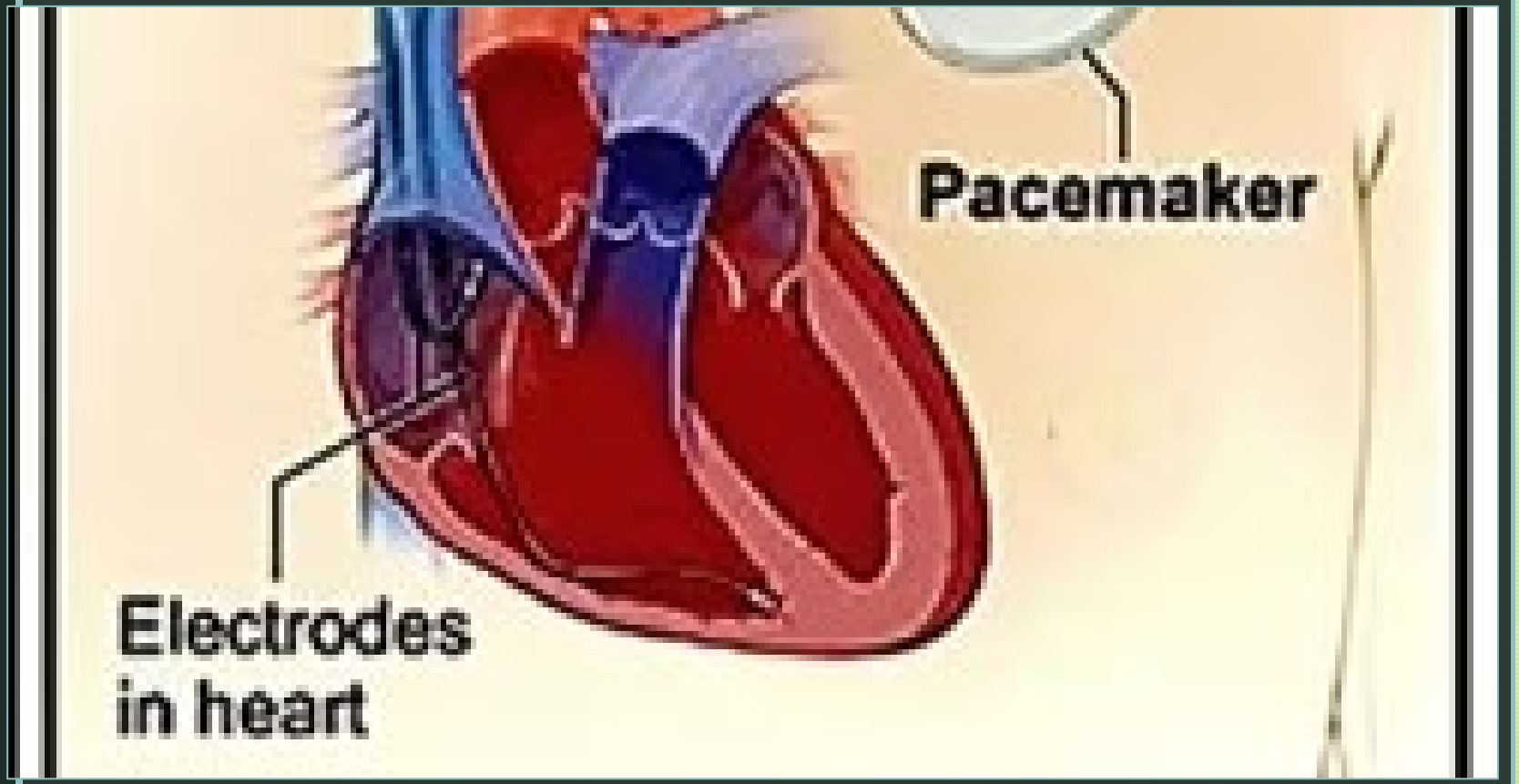
Treatment for permanent AF

- **Heart Rate control**

  minimise symptoms associated with excessive heart rates

  prevent tachycardia-associated cardiomyopathy

- **Anticoagulation**



Pacemaker with AV nodal Ablation

PREVENTION OF A FIB

LIFESTYLE FACTORS

- Obesity[32-35]
- Alcohol consumption[3; 35; 36]
- Risks for cardiovascular disease: smoking, stress, caffeine and other stimulants[3]
- Activity level[2; 3; 35]

OTHER CONDITIONS

- High blood pressure[35]
- Heart failure[27; 31; 37-40]
- History of heart attack[27; 41]
- Coronary artery and other heart disease[27; 33]
- Previous surgery[42; 43]
- Sleep-disordered breathing (eg, obstructive sleep apnoea)[35; 44]
- Diabetes[35; 45]

NON-MODIFIABLE FACTORS

- Older age[3; 46]
- Congenital heart defects[45]
- Family history or other genetic factors[27; 47; 48]
- Male sex[3; 27; 46]

Thank You